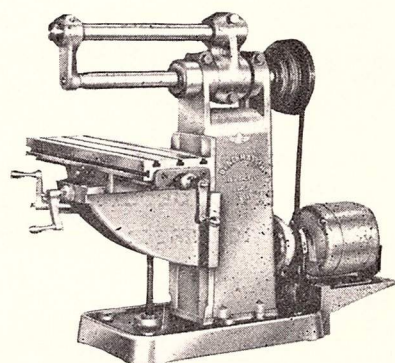
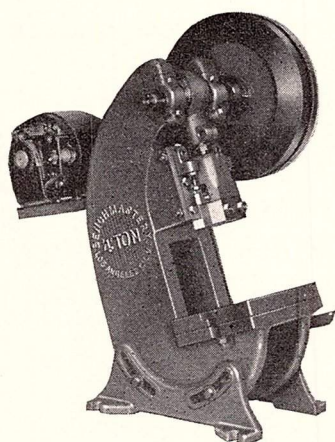
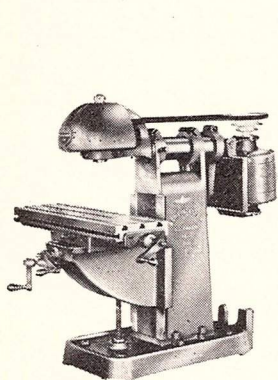


benchmaster

**MACHINE TOOLS FOR EVERY
MACHINE SHOP AND WORK SHOP**



FOR SHOP AND HOME



Punch Presses • Milling Machines • Accessories

BENCHMASTER MACHINES

are designed to

Speed PRODUCTION

... There's ALWAYS Another New Use for BENCHMASTER Machines

The wide variety of uses for the versatile benchmaster tools seems only limited by the ingenuity of the operators. As new industries install these efficient sturdy bench machines, new ideas and methods develop.

To point out that an electrical relay manufacturer uses the punch press for stamping out plastic bases . . . or that angle slotting on the benchmaster milling machine saved a wood shop 50% of its time on one process alone . . . would be holding the benchmaster story to very narrow limits.

Instead may we suggest that you check the following list of various industries, each using benchmaster equipment in many different applications. Undoubtedly, you will find similar requirements in your shop. . . and we'll appreciate any request to our engineering department outlining your needs so that we can suggest simple, inexpensive, benchmaster solutions to your shop production problems.

USERS

MILLING MACHINES

1. Electrical Motor Mfgs.
2. Plastics Mfgs.
3. Tool & Die Rooms
4. Aeroplane Plants
5. Mobile Machine Shops
6. Tool Manufacturers
7. Testing Laboratories
8. Home Work Shops
9. Job Shops
10. Technical Schools
11. Production Metal Shops
12. Toy Mfgs.
13. Radio Mfgs.
14. Electric Relay Mfgs.
15. Electronics Field
16. Automotive Maintenance Shops
17. Bronze & Alloy Casting Shops
18. Musical Instrument Mfgs.
19. Match Mfgs.
20. Costume Jewelry Mfgs.
21. Glass Specialty Shops
22. Instrument Makers

PUNCH PRESSES

1. Aeroplane Plants
2. Electrical Motor Mfgs.
3. Mobile Machine Shops
4. Stamping Companies
5. Testing Laboratories
6. Home Work Shops
7. Plastic Mfgs.
8. Sheet Metal Shops
9. Toy Manufacturers
10. Automotive Mfgs.
11. Technical Schools
12. Radio Mfgs.
13. Powdered Metal Plants
14. Electric Relay Mfgs.
15. Rubber Accessories Mfg.
16. Electronics Field
17. Pressed Paper Industries
18. Bottle Cap Mfgs.
19. Costume Jewelry Mfgs.
20. Leather Goods Mfgs.
21. Wood Model Mfgs.
22. Plastics Mfg.



Sturdy 4-Ton Punch Presses

STAMPS, CRIMPS, MARKS, PUNCHES, RIVETS
FORMS — HANDLES MANY SPECIAL OPERATIONS

"BENCHMASTER" INCLINABLE PUNCH PRESSES

STRAIGHT PRECISION GROUND SHAFT

The shaft construction is novel in that it is composed of a large precision ground eccentric, press-fit, and keyed to a straight precision ground shaft. This feature offers a shock-absorbing bearing surface many times that of the conventional crankshaft design, with no weak or thin points to shear or fail.

Realizing that a shaft revolution speed of 285 per minute will cause wear, our engineers have provided for adjustment and replacement of bearings through removable bearing caps and standardization in manufacture provides for complete interchangeability and replacement of other parts which are all easily reached.

FOR HIGH SPEED PRODUCTION

Packed with the punch of a champion and as quick-on-the-trigger as a thoroughbred are the small but mighty **benchmaster** Punch Presses, available in four ton model. Compact—precision built to do a big, efficient economical job in stamping, marking, punching, crimping, riveting, and many other high speed production operations.

RUGGED FRAMES — BRONZE BEARINGS

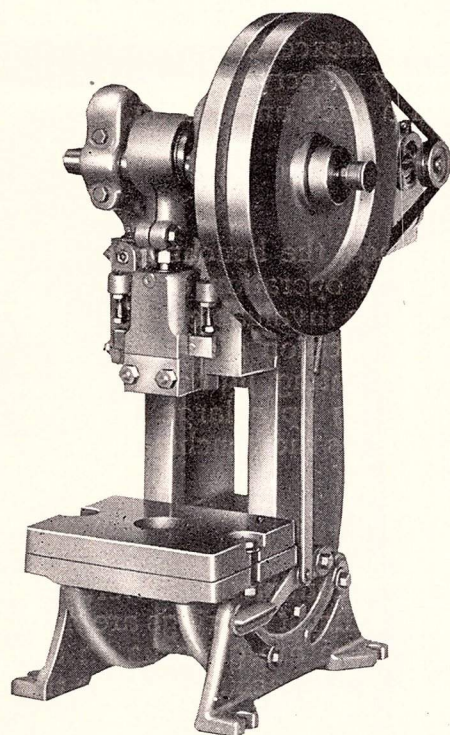
With many exclusive features such as full diameter bronze bushings encasing the shaft at wear points and an oversize bronze bushing fully enclosing the unique eccentric, our presses combine rugged construction with simplicity of operation and design not found in any other light presses. The frames are cast in one piece from semi-steel, heat treated, heavily reinforced at stress points and mounted on two supports forming a broad stand cradle which allows the machines to be inclined for greater versatility in operation. The open back of the frames allows work to be inserted from the front as well as from the sides.

Positive single trip machines can be made to repeat rapidly by removing 1 screw located in the collar; also automatic knock-out.

POSITIVE AUTOMATIC BELT TENSION

A unique floating motor mount maintains proper tension of the V-Belt drive at all times, insuring maximum power delivery to flywheel and ram.

Special stroke and die clearance available on request.



FOUR-TON SPECIFICATIONS

Stroke, 1 in. with 1 in. Round Hole in Ram.
Speed, 285 R. P. M., (Approximately) 1725
R. P. M. Motor.

Die Space, 5 $\frac{1}{4}$ in. when Ram is in Up
Position.

Bolster Plate, 6 in. by 8 in., 1 in. thick
with 2 in. Hole in Center.

Adjusting Screw, Threads 2 in. Long, Ball
and Socket type.

Crank Shaft, Alloy Steel, Heat Treated,
1 $\frac{1}{2}$ in. Dia., Bronze Bushings, Clutch
Sliding Key Hardened Tool Steel, Non-
Repeat Safety Pin., positive Single Trip.

Flywheel Weight 50 Lbs., (Approximately)
Overall Height 27" in.

Weight Complete (Less Motor) 215 Lbs.
(Approximately).



Versatile Milling Machines



TWO MACHINES IN ONE

Here is a vertical bench model milling machine that is speedily and easily converted to a conventional horizontal miller with overarm and arbor by simply interchanging the spindle attachment.

PRECISION TOOL WORK OR HIGH SPEED PRODUCTION

In either position the benchmaster mill is unexcelled in its field for precision tool work and can be equally effective in high speed production by equipping the mill with a rack and pinion feed in place of the standard hand feed.

DOES "EVERYTHING"

Designed to do a big job in a small space, the benchmaster mill has the accuracy, versatility and ease of operation expected of much larger and costlier machines. It is an invaluable addition to any shop as a variety of jobs, such as precision die making, die sinking, slotting, facing, side milling, key seating, jig boring, angle slotting, etc. can be handled without tying up a large machine. Yet, all this is provided at a price that makes the benchmaster mill readily available to all.

NOW IMPROVED

The improved benchmaster mill is more streamlined, heavier, and more accurate than previous models. Ball thrust bearings are now provided on the vertical lead screw. There are giblocks on the table, saddle and knee which insure consistent accuracy once the machine is "set-up". A carefully equalized weight distribution allows for great ease in handling, yet supplies rigidity enough to do heavy work accurately.

AVAILABLE WITH ONLY ONE SPINDLE IF REQUESTED

The machine is available in either horizontal or vertical models with the alternate spindle and the overarm attachment provided as extra equipment.

OVERARM ATTACHMENT

The overarm attachment provided for the horizontal mill gives out-board support for the end of the arbor in taking heavy cuts, or for slitting operations.

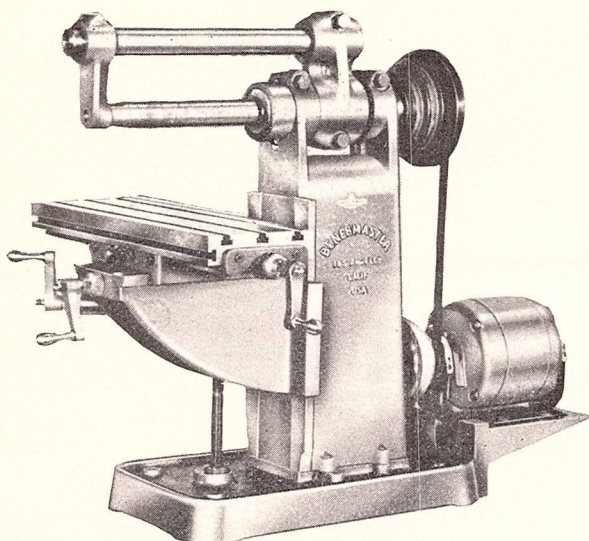
ANGLE SPINDLE

The vertical mill features a spindle arm which swings 60° each side of center, graduated in degrees.

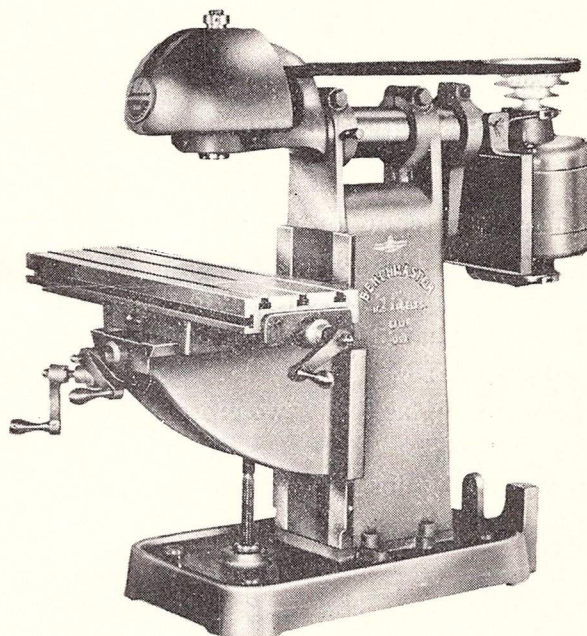




MACHINES ARE TOPS



Horizontal Hand Screw Model



Vertical Hand Screw Model



SPECIFICATIONS

(Same for Horizontal or Vertical, except as marked)

Table size: 6"x18" — with three "T" slots $\frac{3}{8}$ " — 2" center.
Longitudinal travel: 12½".

Traverse travel: 5½".

Vertical travel: 8½" on vertical mill — 9½" on horizontal mill.

Ball thrust bearings on vertical lead screw.

Spindle made of alloy steel mounted on Timken Taper roller bearings.

No. 2 Morse taper in spindle.

Arbor $\frac{7}{8}$ " or 1" diameter optional. Overarm 1½" diameter precision ground and stressproof.

"V" belt, pulley and motor bracket standard equipment.

Height: 28" either vertical or horizontal with overarm.

Weight (less motor) 215 lbs.

Shipping weight (less motor) 270 lbs.

Spindle arm swings 60° each side of center, graduating in degrees.

All dials on feed screws graduated to read in thousands of an inch.

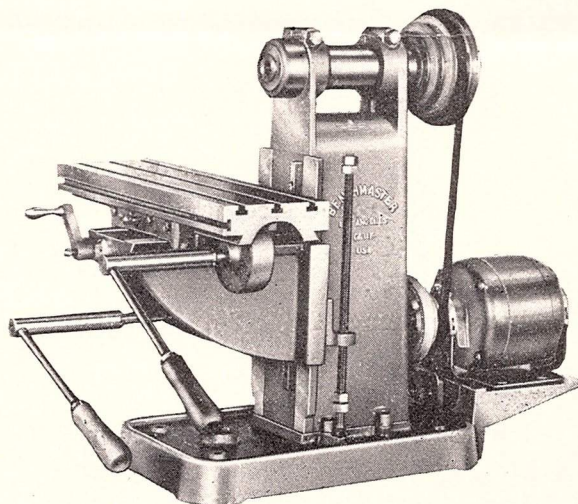
Mills furnished with hand feed.

Rack and pinion feed, optional extra.

Giblock on table, saddle and knee, standard equipment.

Requires 1/3 h.p. motor.

Spindle speeds, using standard 1725, r.p.m. motor, 450, 850, 1400, 2100 r.p.m.



Horizontal Production Model



ACCURATE ACCESSORIES

. . . benchmaster ROTARY TABLE

A low cost, extremely accurate rotary table designed to add increased versatility to the benchmaster milling machine.

SPECIFICATIONS

Table diameter: 6".

Worm gear ratio: 60 to 1.

Bevel dial graduated in 1/10 of a degree.

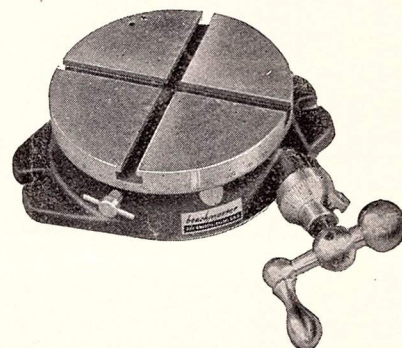
Table graduated, 360°.

Center hole: 5/8".

"T" slots: 3/8"x5/8" . . . two crossing at 90° forming four quadrants.

Height: 2 1/8".

Weight: 14 1/2 lbs.



. . . benchmaster COLLETS

SPECIFICATIONS

No. 2 Morse taper draw-in collets.

Sizes available: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2".



. . . benchmaster SWIVEL VISE

SPECIFICATIONS

Hardened and ground steel jaws.

Jaw width 3 1/4".

Jaw depth: 1 1/8".

Maximum opening: 2 1/4" (2 3/4" without jaws).

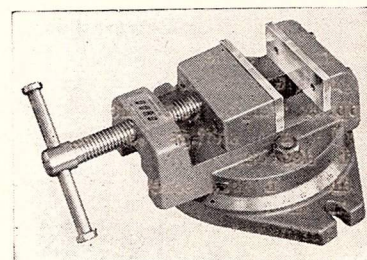
Height: 3 1/8".

Acme lead screw 5/8" diameter.

Swivel base 6" diameter. Graduated in 180° on bevel edge for easy reading.

Vise may be removed for use without swivel base.

Seasoned semi-steel construction.



PARTIAL LIST OF USERS

Bell Telephone
Braniff Airways
Westinghouse Electric & Mfg. Co.
General Electric Co.
Sterling Electric Co.
Sperry Gyroscope Co.
North American Aviation
American Microphone Co.
Grayson Heat Control
Leach Relay Co.
Willard Storage Battery Co.
Norris Stamping Co.
Hoffman Radio Co.
Bendix Aviation, Ltd.
Hughes Aircraft Co.
Mission Bell Radio
L. G. Balfour Co.
Consolidated Aircraft Co.
Lockheed Aircraft, Inc.
Firestone Rubber Co.
U. S. Rubber Co.
Goodrich Rubber Co.
Goodyear Rubber Co.
Kirkhill Rubber Co.
Western Electric
Yale Lock & Safe Co.
Airesearch
Allen Calculators
American Screw Products
Bethlehem Steel
Bardwell & McAllister
Capehart
Magnavox
Scott Radio
Buick Div. General Motors
Delco Remy Div. General Motors
Fulton Slyphon Co.
Modern Plastic
Multi Plastic
Y.M.C.A. Training Schools
Crown Cork
Western Cap & Seal
Coca Cola Co.
Columbia Stamping

American Stamping
Cook Electric
National Geophysics
Scully Bros.
Aircraft Belt & Trim
Seaboard Coil Spring
George Schmidt Company
Collapsible Crib Manufacturing
Packard Bell Laboratories
Midlin Models
Plastic Products
L. H. Butcher Company
U. S. Navy
Marine Corps
Victor Adding Machine
Army Air Corps
Army Signal Corps
Bussey Pen Products
Colonial Dames Company
Curtis Wright Corporation
Diamond Tool
Dzus Fastner Company
Thomas Edison Company
Fisher Tool
Frazer & Hansen
General Heel Company
Sam Goldwyn Studios
Hamilton Std. Propellers
Higgins Industries, Incorporated
Ken Rad. Tube & Lamp Corporation
Farnsworth Radio & Television
Manning Maxwell & Moore
Morganite Brush Company
Pioneer Gen-E Motor
S. & M. Lamp Company
Square D Company
Stoody Corporation
Teletype Company
Trumbull Electrical Manufacturing
Transcontinental & Western Air Express
L. A. Spring & Wire Corporation
American Tel. & Tel. Company
E. I. Dupont de Nemours
Landers Frary & Clark

benchmaster

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